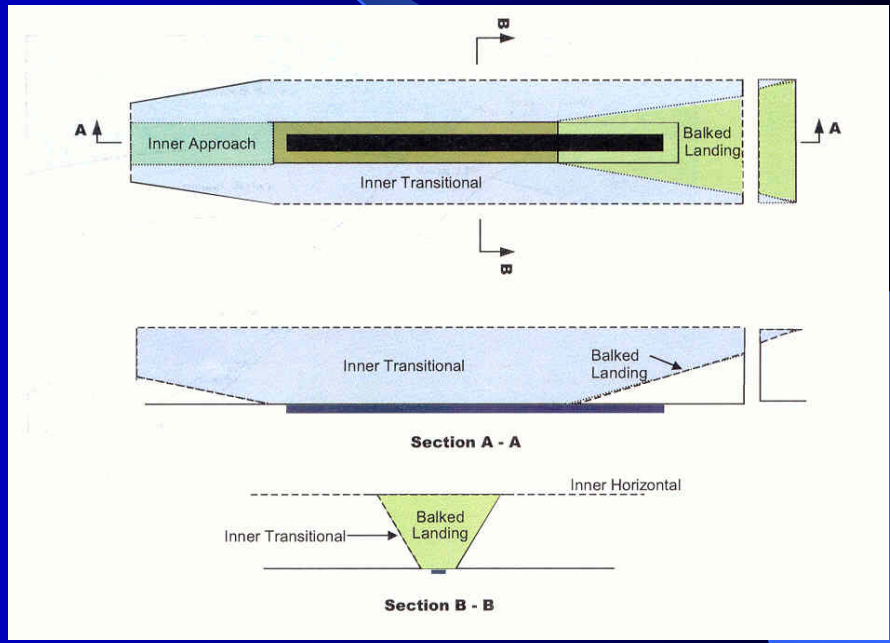
Aerodrome Planning

BIRDSVILLE Aerodrome

Obstacle Limitation Surfaces

- Definition
- Local Terrain
- Proximity to Town Areas
- Light Aircraft Parking Areas



Definition

- The Obstacle Limitation Surfaces (OLS) are conceptual (imaginary) surfaces associated with a runway, which identify the lower limits of the aerodrome airspace above which objects become obstacles to aircraft operations, and must be reported to CASA. (Manual of Standards Part 139 – Aerodromes, Section 7.3)

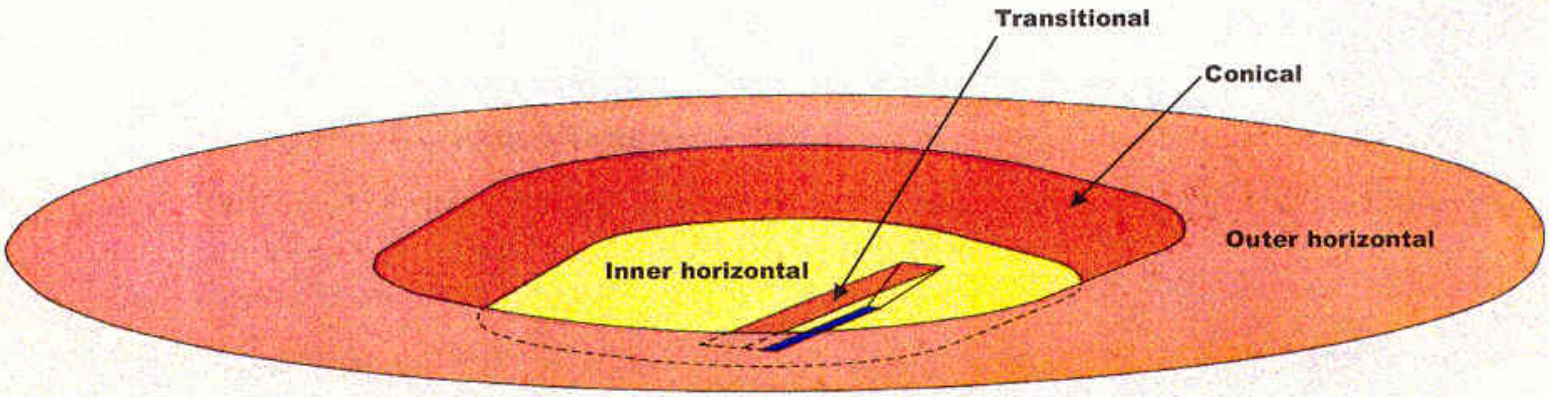


Figure 7.3-1: Relationship of outer horizontal, conical, inner horizontal and transitional surfaces

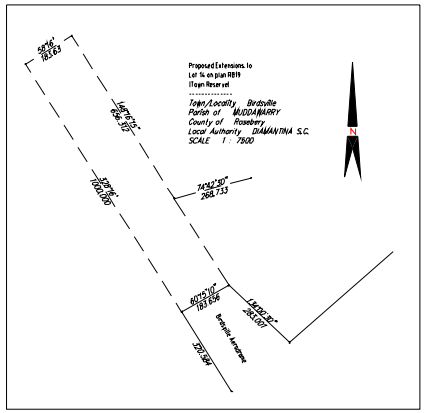
Local Terrain

- Sand Dunes to the North
- Sand Dunes are prone to movement over time

The following slide is a plan produced for the extension of the Northern end of runway 14/32. The plan shows a three dimensional representation of the sand dunes which were encroaching on the Obstacle limitation Surface of the proposed runway extension.

The plan also shows the extents of the obstacle limitation surface in The vicinity of the runway extension.

A large volume of sand in the order of 30,000 cubic metres was removed from these sand dunes prior to the construction of the runway extension.

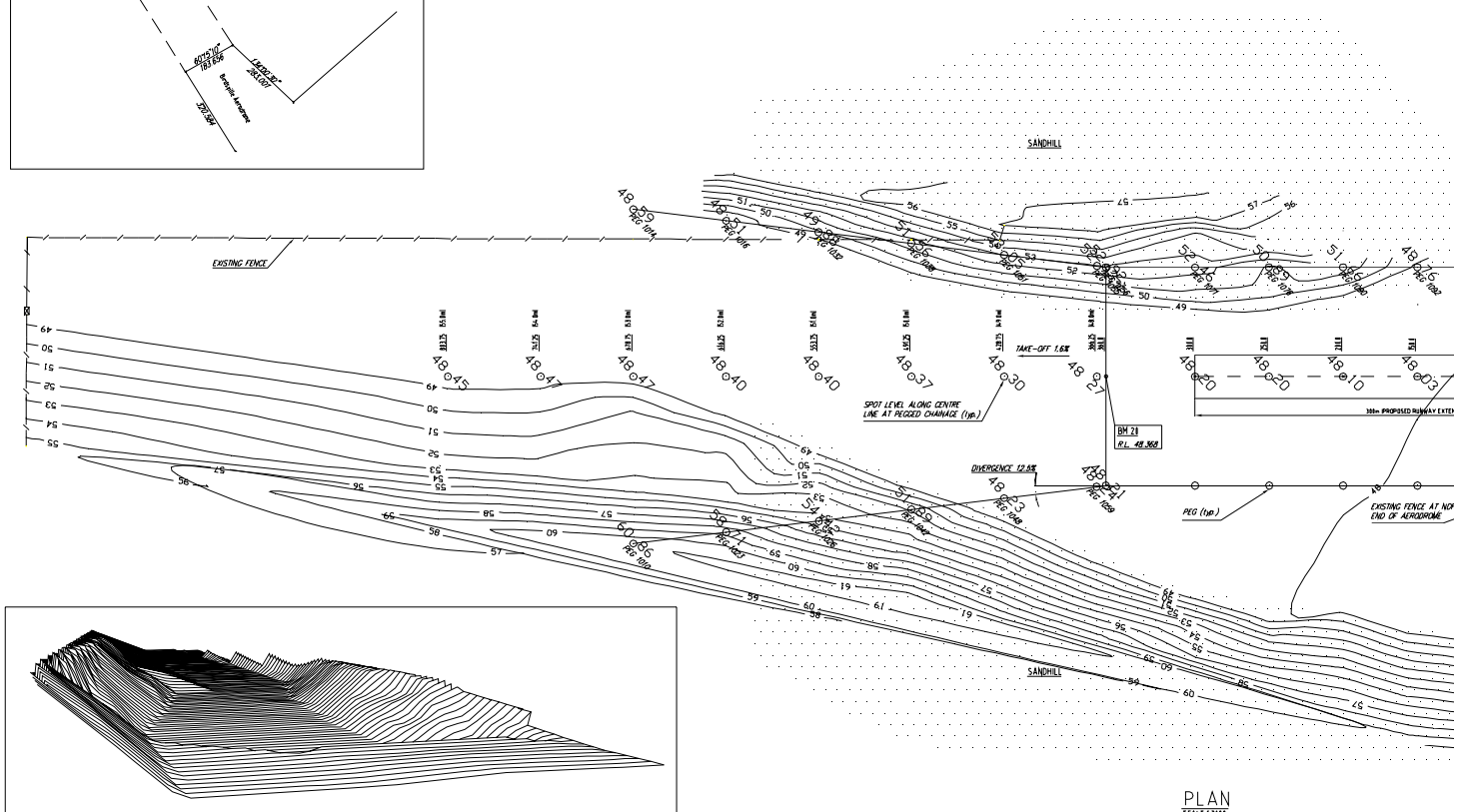


PEG	CHAINAGE	LEFT OF ℄ N.S.	RIGHT OF ℄ N.S.	OLS HEIGHT	CUT (m)
1082	150		48.76		.76
1080	200		51.66		3.66
1076	250		50.89		2.89
1071	300		52.46		4.46
1056	360		52.92		4.92
1055	366.28		52.93	48.0	4.93
1051	428.78		53.08	49.0	4.05
1038	491.25		51.56	50.0	1.56
1042	491.25	51.89		50.0	1.89
1052	553.75		49.88	51.0	-----
1028	553.75	54.42		51.0	3.42
1023	616.25	58.71		52.0	6.71
1010	678.75	60.86		53.0	7.86

NOTE:

1 – ALL DIMENSIONS AND LEVELS SHOWN ON THIS AND ASSOCIATED PLANS SHALL BE VERIFIED ON SITE BEFORE STARTING SETTING UP FINISHED LEVELS. IF ANY DISCREPANCIES WITH THE PLANS ARE FOUND THEN THE ENGINEER OR DESIGNER SHOULD BE NOTIFIED AS SOON AS POSSIBLE SO THE PROBLEM IF ANY CAN BE ADDRESSED WHEREIN TOLL.

2 – OBSTACLE LIMITATION SURFACE HAS BEEN DESIGNED AS A NON-PRECISION CODE 3 RUNWAY.



PLAN

SCALE 1:1000

SANDHILLS IMPEDING OBSTACLE LIMITATION SURFACE ON RWY 14/32 FACING NORTH

No.	Revision Description	By	Date
A	PLAN PLOTTED TO AN A3 SIZE	AF	09/03

SURVEY DATA
L.B. 447 F.B.
Datum: PSM 7402
AL=279m
LEVELS TAKEN FROM TRANSPORT DEPT DRAWING Dwg BS-1079H

Surv. DG 13/2010
Des.
Draft. DG 13/2010
Chk.

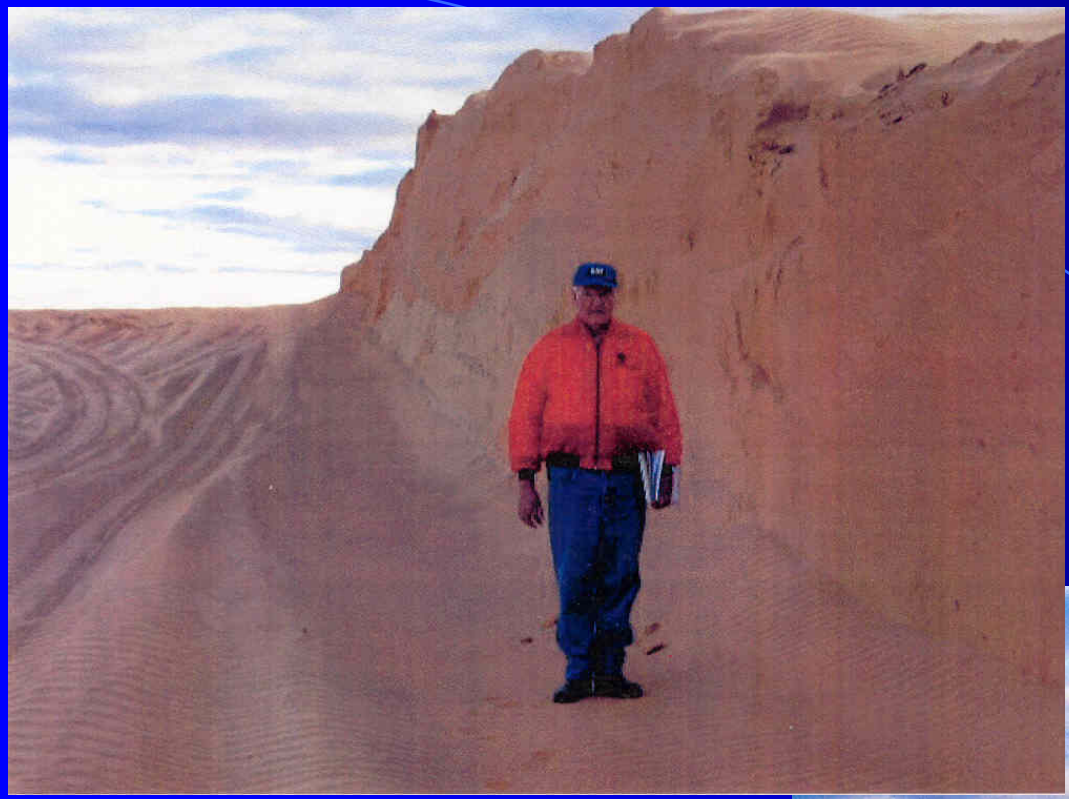
GEORGE BOURNE & ASSOCIATES
CONSULTING CIVIL ENGINEERS

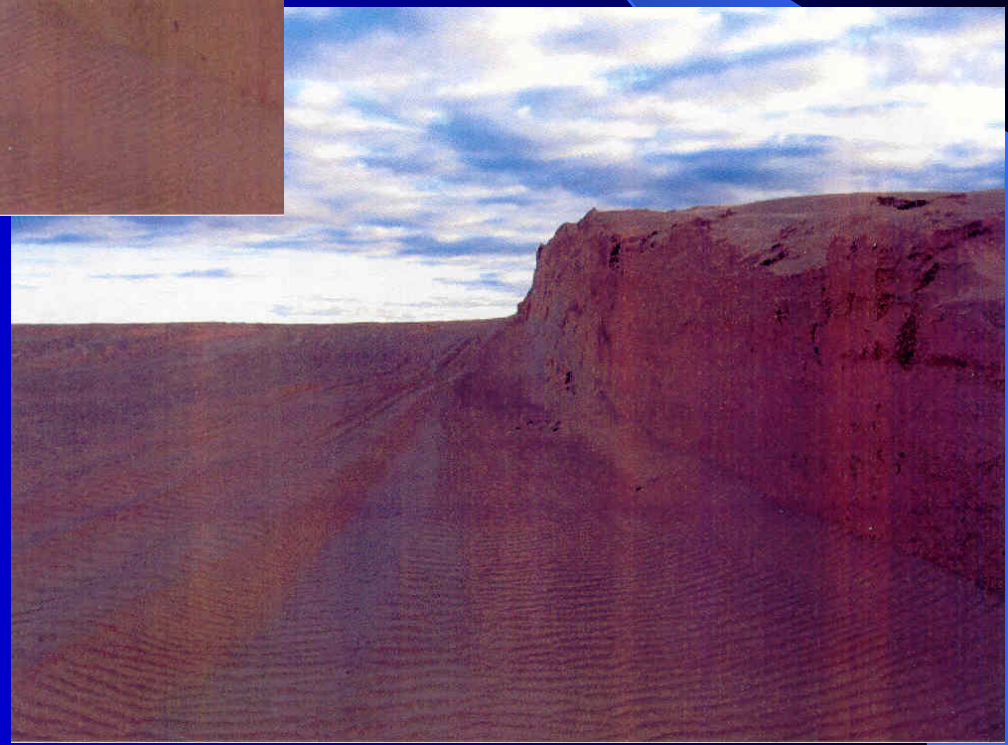
Scale AS SHOWN
ORGINAL PLAN ON A1 SIZE

Approved:
K Kerr 09/03 RPEQ

DIAMA

OBSTACLE L
C

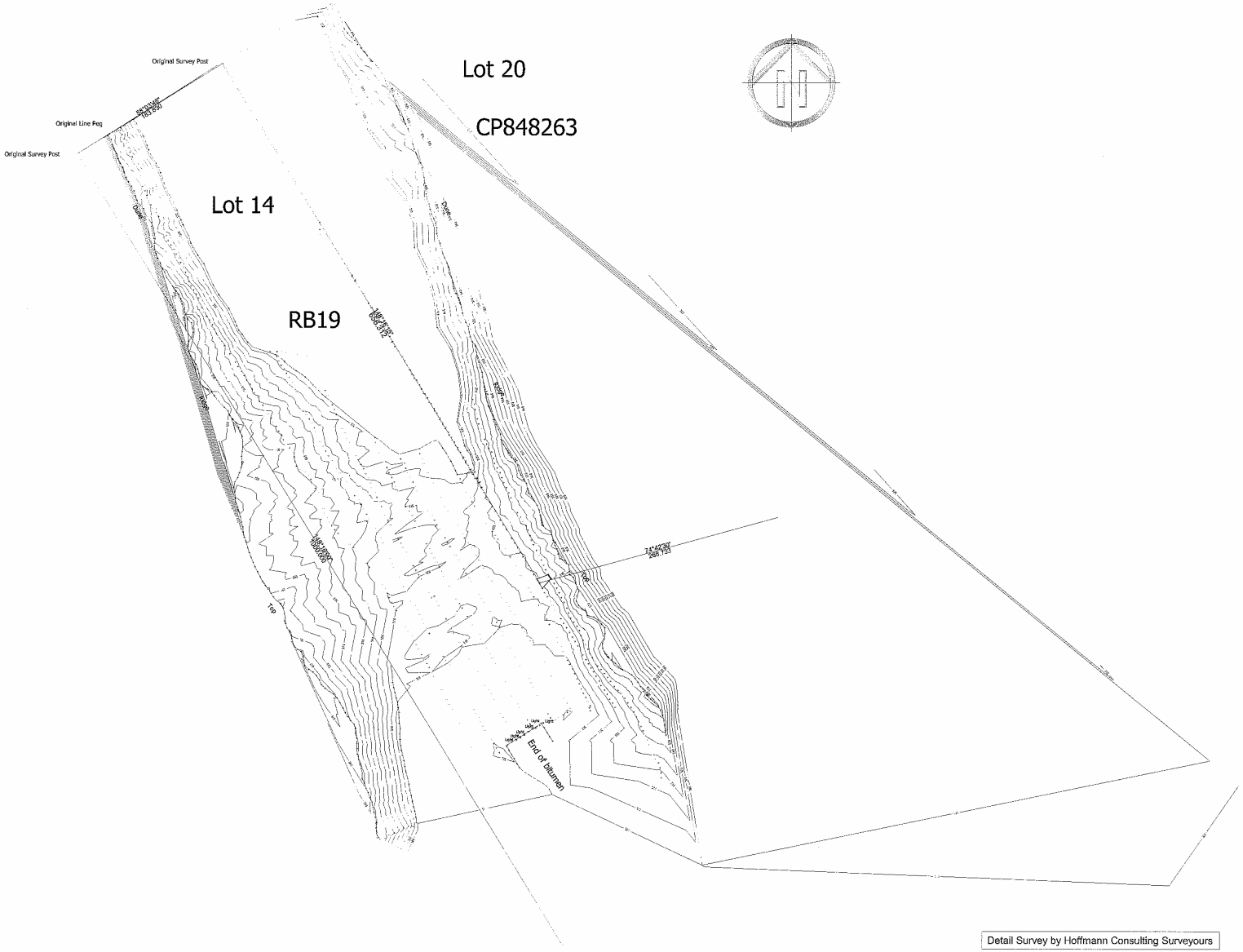




The following slide shows the results of a recent survey of the area to the North of the runway extension. The Manual of Standards for Aerodromes specifies a takeoff gradient of 1.6% for a code 3 Non Precision runway such as runway 14/32 at Birdsville.

Sand dune peaks shown in the following drawing now encroach this surface by as much as 1.9m.

The area shown in the slide was excavated in 2003 to conform to the obstacle limitation surface of the proposed runway extension. the peaks which encroach the surface today have been moved to their current position by the wind.



Detail Survey by Hoffmann Consulting Surveyours

No.	Revision Description	By	Date	Survey Data
–	–	–	–	L.B
–	–	–	–	Datum
–	–	–	–	
–	–	–	–	

Surv Hoffmann 05
Des DP 03/05
Draw DP 03/05
Chk

GEORGE BOURNE & ASSOCIATES
Consulting Civil Engineers

Scale: 1:1000

Approved:
RPEQ 04/05

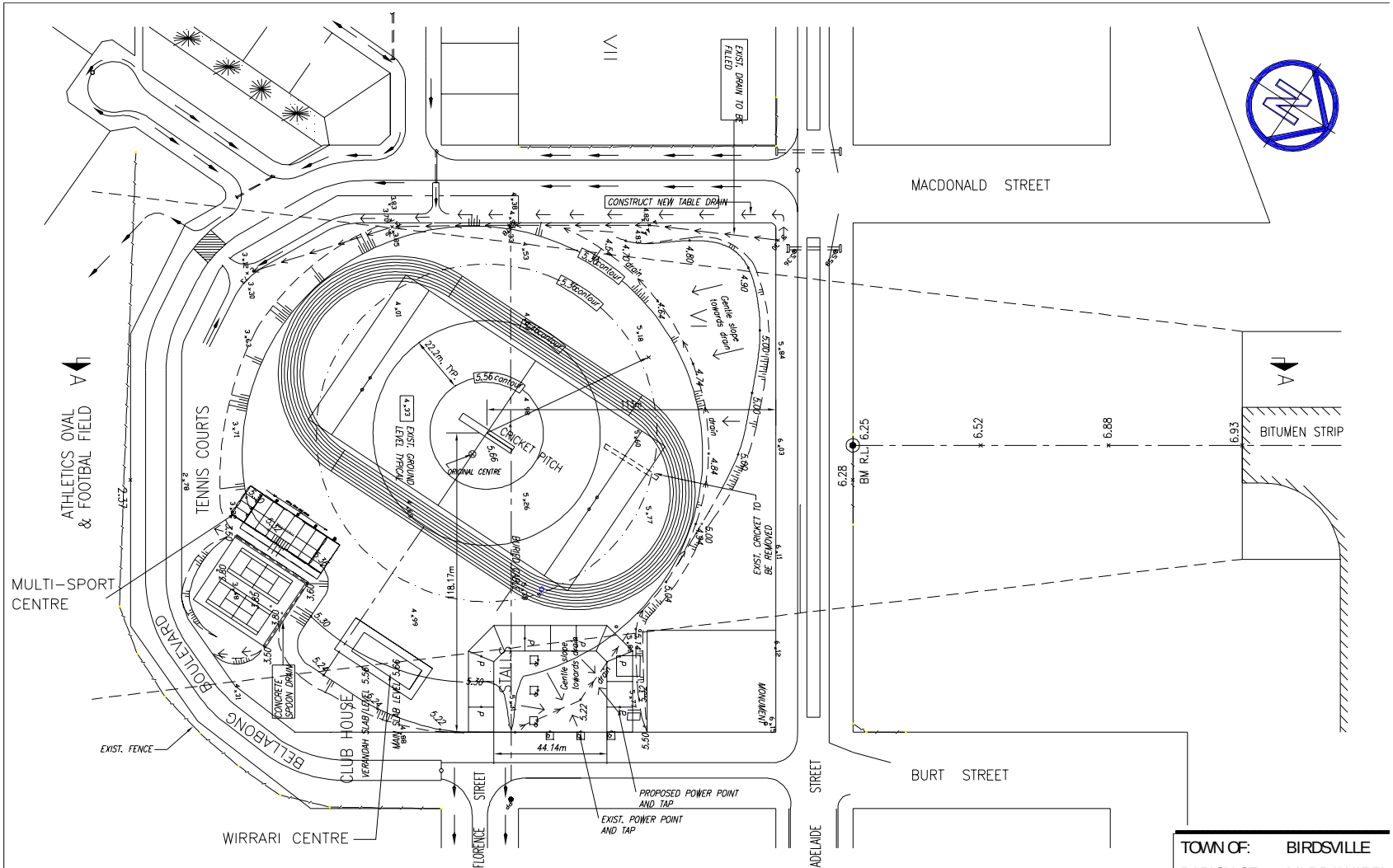
AGEA

DIAMANTINA SHIRE COUNCIL
BIRDSVILLE AERODROME
DETAIL SURVEY
PLAN

Job No. --
Dwg No. SK1000
Rev P
Cat. A3

Proximity to Town Areas

- The following slides highlight the issues pertaining to the obstacle limitation surface (OLS) at the Southern end of runway 14/32.
- The first slide is a plan which shows the extents of the OLS covering existing and proposed infrastructure in the Birdsville town area.
- The second slide is a section of the OLS with an exaggerated vertical scale showing how both fixed and unfixed objects can penetrate the OLS,



PLAN

SCALE 1:1000

TOWN OF:	BIRDSVILLE
PARISH OF :	MUDDAWARRY
COUNTY OF:	ROSEBERY

NOTE:

THERE IS NO STANDARD SIZE FOR CRICKET OVALS, BUT ACCORDING TO KEVIN MITCHELL, CURATOR FOR THE GABBA GROUNDS, 70m - 75m RADIUS IS A GOOD SIZE FOR ADULTS. GABBA CRICKET OVAL MEASURES 152m x 171m.

No.	Revision Description	By	Date
A	FOOTBALL FIELD MOVED 10m WESTERLY FROM THE CENTRE OF THE PITCH	H.A	30/04/01

SURVEY DATA: L.B. F.B. Level Datum:

Surv. Design M.W 10/95 Drawn M.W 10/95 Chkd

GEORGE BOURNE & ASSOCIATES
CONSULTING CIVIL ENGINEERS

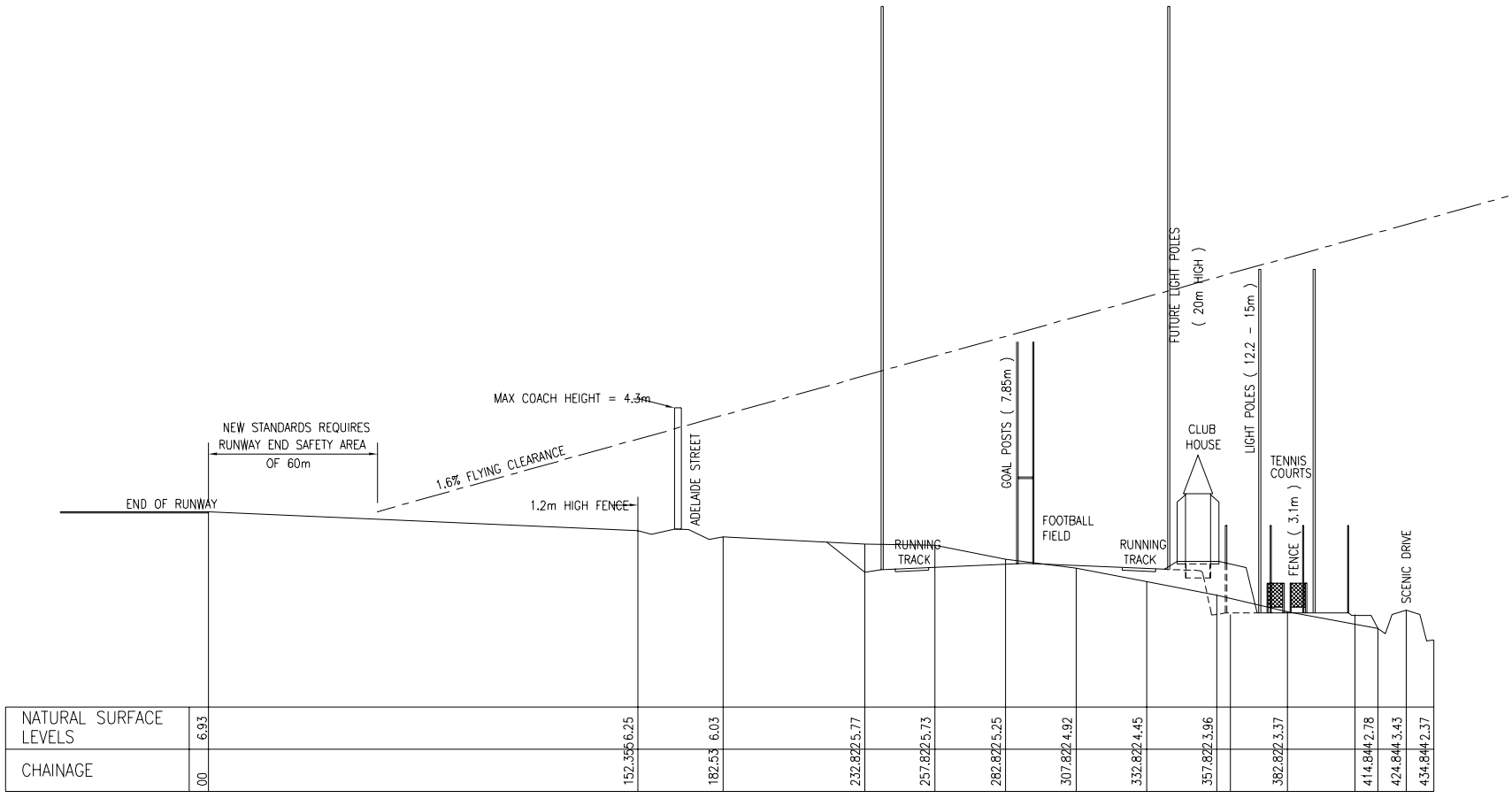
Scale: 0 5 10 20 30m 1:1000

Approved: C.GRAY RPEQ -/04/01

DIAMANTINA SHIRE COUNCIL

TOWN OF BIRDSVILLE
PROPOSED ATHLETICS OVAL AND FOOTBALL FIELD

Job No: X
Dwg No. 284-9
No. 1 of 1



SECTION A–A

SCALE H. 1 ; 1000
V. 1 ; 100

Light Aircraft Parking Areas

- Current standards require light aircraft to park on the Eastern side of the light aircraft parking area only. The tail of an aircraft parked on the Western side of the light aircraft parking area will penetrate the OLS.

Pavement Strength

- ACN & PCN
- Typical ACN's
- Design Aircraft

ACN & PCN

- The ACN & PCN are an Aircraft Classification Number and a Pavement Classification Number respectively. ACN & PCN are an aerodrome pavement rating system whereby a pavement concession is required if the ACN exceeds the PCN.
- The PCN for existing aerodromes has been determined empirically by the successful operation of a design aircraft. The ACN for a particular aircraft is determined by the operating weight, tyre pressure and landing gear configuration.

Typical ACN's

Birdsville PCN Runway 14/32 = 10	
Embraer EMB-120 Brasilia	ACN = 6
Fokker 100	ACN = 23
Dash 8	ACN = 8
Fairchild Metro	ACN = 4

Design Aircraft

- The design aircraft for the Birdsville aerodrome was an Embraer EMB-120 Brasilia with a seating capacity of 30.
- Pavement testing results are currently being analysed with a view to increase the PCN at Birdsville to accommodate larger aircraft such as the 100 seat Fokker 100.

Runway Extension

- Planning
- Construction

Planning

- The aim of the 300m extension to the Northern end of runway 14/32 was to accommodate larger passenger aircraft such as the Fokker 100 and other smaller jet aircraft. The 300m extension gives runway 14/32 a total length of 1,732m which will accommodate the intended traffic with respect to runway length.

Construction

- Excavation of sand dunes to the North of the runway extension completed in 2003.
- Construction of the runway extension completed in late 2004.
- Aerodrome Reseal Scheduled for May 2005.
- Total project cost in the order of $750,000.